

wherein:-

$\sim$  indicates a bond at a chiral centre of the structure which centre may be in the R or S configuration or a mixture thereof;

R and R<sup>2</sup> is an amino acid side chain group which may be the same or different;

M<sup>I</sup> and M<sup>II</sup> may be the same or different and are selected from the group consisting of hydrogen, C<sub>1</sub>-C<sub>4</sub> alkyl, chloro and C<sub>1</sub>-C<sub>4</sub> alkoxy;

R<sup>N</sup> is -N(Z<sup>I</sup>)Pg<sup>N</sup> where Z<sup>I</sup> is selected from the group consisting of hydrogen, methyl and part of a cyclic amino acid sidechain joined to Q<sup>I</sup>, and PgN is a protecting group for amine;

R<sup>C</sup> is selected from the group consisting of a carboxy terminal part of the mimetic, hydrogen, R, and -CH<sub>2</sub>R;

Q<sub>1</sub> = R<sup>1</sup> which has the same definition as R and R<sup>2</sup> above and Q<sup>2</sup> = Z where Z is selected from the group consisting of hydrogen, methyl, ethyl, formyl and acetyl, -CH<sub>2</sub>R, and -C(O)R or alternatively Z is part of a cyclic amino acid side chain group joined to R<sup>2</sup>; or Q<sup>1</sup> and Q<sup>2</sup> taken together represent a cyclic group;

Q<sup>3</sup> is selected from the group consisting of Y, -C(O)NHCH(R)Y-, -C(O)ENHCH(R)Y-, -C(O)N(Q<sup>5</sup>)CH(R)Y- wherein Y is selected from the group consisting of C(O) and CH<sub>2</sub> and Q<sup>5</sup> is a covalent bond from the Q<sup>4</sup> group to the nitrogen atom in Q<sup>3</sup> to form a bicyclic ring system or alternatively, is selected from the group consisting of hydrogen, C<sub>1</sub>-C<sub>4</sub> alkyl, chloro and C<sub>1</sub>-C<sub>4</sub> alkoxy and E is (AA)<sub>n</sub> where n is 1-300 and AA is an amino acid residue; and

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cont

$Q^4$  is selected from the group consisting of  $CH(M^1)$ ,  $C(O)$ ,  $CH(Q^5)CH_2$  and  $CH(Q^5)C(O)$ ,

with the provisos that when:-

- (i)  $Q^4 = CH(M^1)$ , Y is  $C(O)$ ;
- (ii)  $Q^4 = C(O)$ , Y is  $CH_2$ ;
- (iii)  $Q^4 = CH(Q^5)CH_2$ , Y is  $C(O)$ ;
- (iv)  $Q^4 = CH(Q^5)C(O)$ , Y is  $CH_2$ ; and
- (v)  $Q^3 = -C(O)N(Q^5)CH(R)Y$ ,  $Q^5$  is a covalent bond from the  $Q^4$  group to the nitrogen atom in  $Q^3$  which is a cyclization forming a bicyclic ring system.

75. A peptide mimetic as claimed in claim 74 wherein when  $Q_1$  and  $Q_2$  form a cyclic group,  $Q_1Q_2$  is selected from the group consisting of  $-CH(R)C(O)-$ ,  $-CH_2CH(R)C(O)-$ ,  $-CH_2CH_2CH(R)C(O)-$ ,  $-CH(R)CH_2-$ ,  $-CH_2CH(R)CH_2-$ ,  $-CH_2CH_2CH(R)CH_2-$ ,  $-CH_2CH(R)-$ ,  $-CH_2CH_2CH(R)-$ ,  $-CH(R)CH_2CH_2-$ ,  $-CH_2CH(R)CH_2CH_2-$ ,  $-CH(R)CH_2C(O)-$  and  $-CH_2CH(R)CH_2C(O)-$ .

76. A peptide mimetic as claimed in Claim 74 wherein n is 1-30.

77. A peptide mimetic as claimed in Claim 74 wherein E represents a loop of n amino acids which additionally incorporate non-alpha amino acid(s), alpha dialkyl amino acid(s) or other amino acid which provides the peptide mimetic with increased binding affinity or increased ease of detection, identification or purification.

78. A peptide mimetic as claimed in Claim 74 wherein  $Q^1$  is R,  $Q^2$  is Z,  $Q^3$  is Y.

79. A peptide mimetic as claimed in Claim 74 wherein  $Q^1$  is R,  $Q^2$  is Z,  $Q^3$  is  $C(O)NHCH(R)Y$  and  $Q^5$  is  $M^1$ .

80. A peptide mimetic as claimed in Claim 74 wherein  $Q^1$  is R,  $Q^2$  is Z,  $Q^3$  is  $C(O)NHCH(R)C(O)-NHCH(R)Y$  and  $Q^5$  is  $M^1$ .

81. A peptide mimetic as claimed in Claim 74 wherein  $Q^1$  is R,  $Q^2$  is Z,  $Q^3$  is  $C(O)N(Q^5)CH(R)Y$  and  $Q^5$  is a covalent bond to  $Q^3$ .

82. A peptide mimetic as claimed in Claim 74 wherein  $Q^1$  is  $CH(R)C(O)Q^2$ ,  $Q^2$  is a covalent bond to  $Q^1$ ,  $Q^3$  is Y and  $Q^5$  is  $M^I$ .

83. A peptide mimetic as claimed in Claim 74 wherein  $Q^1$  is  $CH_2CH(R)C(O)Q^2$ ,  $Q^2$  is  $Q^1$ ,  $Q^3$  is Y and  $Q^5$  is  $M^I$ .

84. A peptide mimetic as claimed in Claim 74 wherein  $R^C$  is  $C(O)Pg^C$  where  $Pg^C$  is a protecting group for carboxylic acid.

85. A peptide mimetic as claimed in Claim 84 wherein  $Pg^C$  is selected from the group consisting of alkoxy, benzyloxy, allyloxy, fluorenyl methyloxy, amines forming easily removable amides, a cleavable linker to a solid support, the solid support itself, hydroxy-NHR,  $C(O)R$  and the remaining C-terminal portion of the mimetic.

86. A peptide mimetic as claimed in Claim 85 wherein  $Pg^C$  is methoxy or ethoxy.

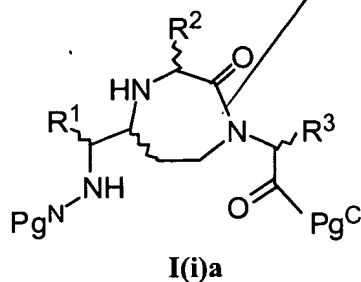
87. A peptide mimetic as claimed in Claim 74 wherein  $Pg^N$  is a protecting group for an amine.

88. A peptide mimetic as claimed in Claim 74 wherein  $Pg^N$  is selected from the group consisting of Boc, Cbz, Fmoc, Alloc, trityl, a cleavable linker to a solid support, the solid support itself, hydrogen, R,  $C(O)R$  and the remaining N terminal portion of the mimetic.

89. A peptide mimetic as claimed in Claim 74 wherein  $M^I$  or  $M^{II}$  is methoxy.

90. A peptide mimetic as claimed in Claim 74 wherein  $M^I$  or  $M^{II}$  is methyl.

91. Compounds I(i)a having the structure:

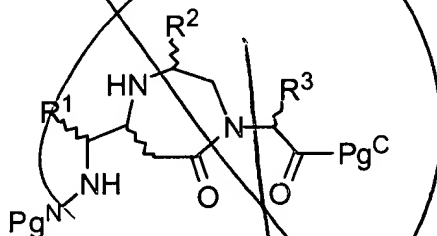


wherein  $R^1$ ,  $R^2$  and  $R^3$  are amino acid side chain groups,  $Pg^N$  is a protecting group for amino,  $Pg^C$  is a protecting group for carboxylic acid and  $\sim$  indicates

a bond at a chiral center of the structure which centre may be in the R or S configuration or a mixture thereof.

92. Compounds I(i)a as claimed in Claim 91 where  $R_1$  and  $R_2 \neq H$ .

93. Compounds I(ii)a having the structure:

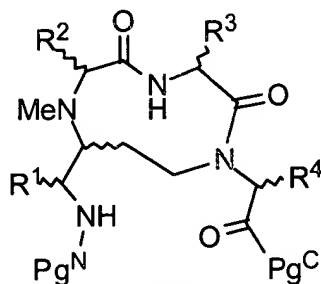


**I(ii)a**

wherein  $R^1$ ,  $R^2$  and  $R^3$  are amino acid side chain groups,  $Pg^N$  is a protecting group for amino,  $Pg^C$  is a protecting group for carboxylic acid and  $\sim$  indicates a bond at a chiral center of the structure which centre may be in the R or S configuration or a mixture thereof.

94. Compounds I(ii)a as claimed in Claim 93 where  $R_1$  and  $R_2 \neq H$ .

95. Compounds II(i)a having the structure:

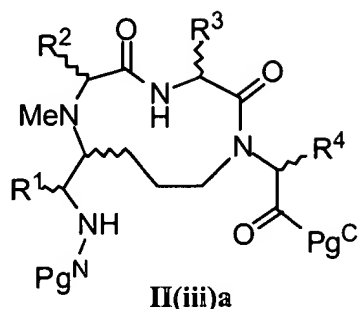


**II(i)a**

wherein  $R_1$ ,  $R_2$ ,  $R_3$  and  $R^4$  are amino acid side chain groups,  $Pg^N$  is a protecting group for amino,  $Pg^C$  is a protecting group for carboxylic acid and  $\sim$  indicates a bond at a chiral center of the structure which centre may be in the R or S configuration or a mixture thereof.

96. Compounds II(i)a as claimed in Claim 95 where  $R_1$  and  $R_2 \neq H$ .

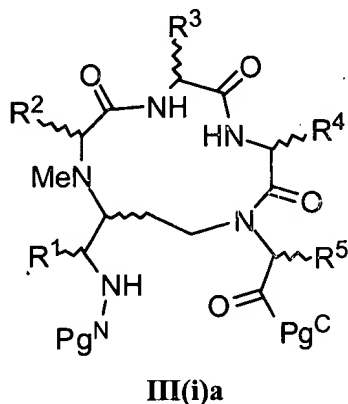
97. Compounds II(iii)a having the structure:



wherein  $R_1$ ,  $R_2$ ,  $R_3$  and  $R^4$  are amino acid side chain groups,  $Pg^N$  is a protecting group for amino,  $Pg^C$  is a protecting group for carboxylic acid and  $\sim$  indicates a bond at a chiral center of the structure which centre may be in the R or S configuration or a mixture thereof.

98. Compounds II(iii)a as claimed in Claim 97 where  $R_1$  and  $R_2 \neq H$ .

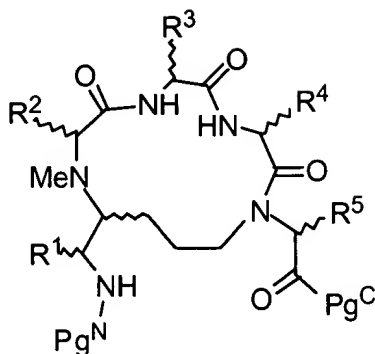
99. Compounds III(i)a having the structure:



wherein  $R_1$ ,  $R_2$ ,  $R_3$ ,  $R_4$  and  $R^5$  are amino acid side chain groups,  $Pg^N$  is a protecting group for amino,  $Pg^C$  is a protecting group for carboxylic acid and  $\sim$  indicates a bond at a chiral center of the structure which centre may be in the R or S configuration or a mixture thereof.

100. Compounds III(iii)a having the structure:

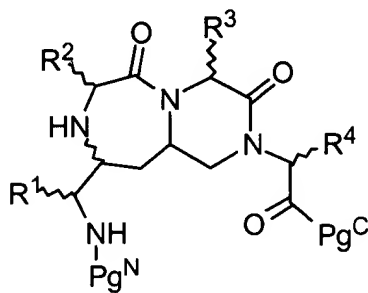
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III(iii)a

wherein  $R^1$ ,  $R^2$ ,  $R^3$ ,  $R^4$  and  $R^5$  are amino acid side chain groups,  $Pg^N$  is a protecting group for amino,  $Pg^C$  is a protecting group for carboxylic acid and  $\sim$  indicates a bond at a chiral center of the structure which centre may be in the R or S configuration or a mixture thereof.

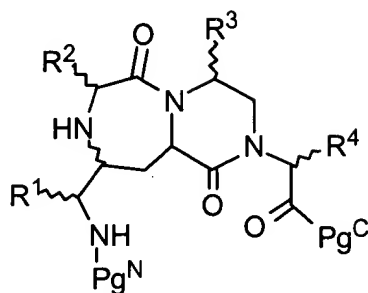
101. Compounds IV(i)a having the structure:



IV(i)a

wherein  $R_1$ ,  $R_2$ ,  $R_3$  and  $R^4$  are amino acid side chain groups,  $Pg^N$  is a protecting group for amino,  $Pg^C$  is a protecting group for carboxylic acid and  $\sim$  indicates a bond at a chiral center of the structure which centre may be in the R or S configuration or a mixture thereof.

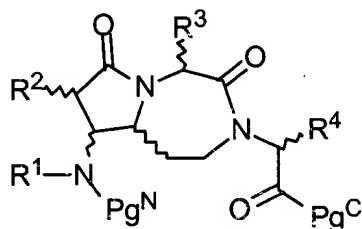
102. Compounds IV(ii)a having the structure:



IV(ii)a

wherein  $R_1$ ,  $R_2$ ,  $R_3$  and  $R^4$  are amino acid side chain groups,  $Pg^N$  is a protecting group for amino,  $Pg^C$  is a protecting group for carboxylic acid and  $\sim$  indicates a bond at a chiral center of the structure which centre may be in the R or S configuration or a mixture thereof.

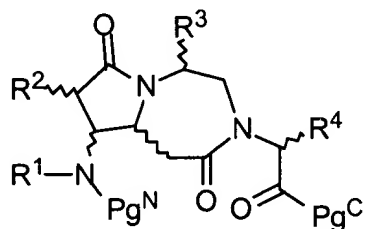
103. Compounds V(i)a having the structure:



V(i)a

wherein  $R_1$ ,  $R_2$ ,  $R_3$  and  $R^4$  are amino acid side chain groups,  $Pg^N$  is a protecting group for amino,  $Pg^C$  is a protecting group for carboxylic acid and  $\sim$  indicates a bond at a chiral center of the structure which centre may be in the R or S configuration or a mixture thereof.

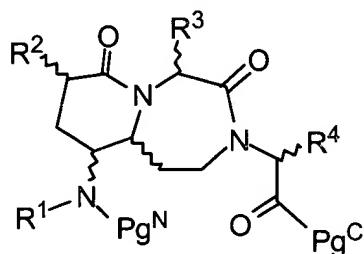
104. Compounds V(ii)a having the structure:



V(ii)a

wherein  $R_1$ ,  $R_2$ ,  $R_3$  and  $R^4$  are amino acid side chain groups,  $Pg^N$  is a protecting group for amino,  $Pg^C$  is a protecting group for carboxylic acid and  $\sim$  indicates a bond at a chiral center of the structure which centre may be in the R or S configuration or a mixture thereof.

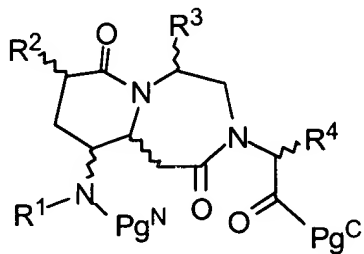
105. Compounds VI(i)a having the structure:



VI(i)a

wherein  $R_1$ ,  $R_2$ ,  $R_3$  and  $R^4$  are amino acid side chain groups,  $Pg^N$  is a protecting group for amino,  $Pg^C$  is a protecting group for carboxylic acid and  $\sim$  indicates a bond at a chiral center of the structure which centre may be in the R or S configuration or a mixture thereof.

106. Compounds VI(ii)a having the structure:

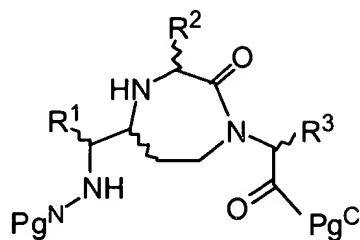


VI(ii)a

wherein  $R_1$ ,  $R_2$ ,  $R_3$  and  $R^4$  are amino acid side chain groups,  $Pg^N$  is a protecting group for amino,  $Pg^C$  is a protecting group for carboxylic acid and  $\sim$  indicates a bond at a chiral center of the structure which centre may be in the R or S configuration or a mixture thereof.

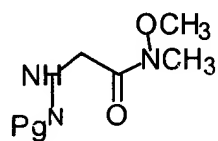
107. A process for making mimetics I(i)a having the structure:



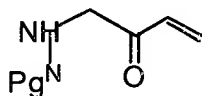


**I(i)a**

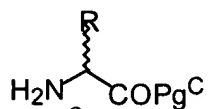
wherein  $R^1$ ,  $R^2$  and  $R^3$  are amino acid side chain groups,  $Pg^N$  is a protecting group for amino and  $Pg^C$  is a protecting group for carboxylic acid and  $\sim$  indicates a bond at a chiral center of the structure which centre may be in the R or S configuration or a mixture thereof wherein compounds having the structure:



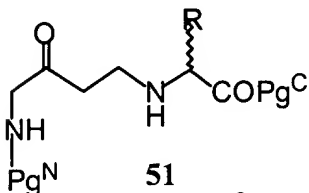
are reacted with vinyl magnesium bromide to form compounds having the structure:



which are then reacted with compounds having the structure:



to form compounds having the structure:



which are then reacted with compounds having the structure:

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